

CLAIMS

1. A method of coating the surface of a substrate which comprises the steps of:

5           i) contacting the surface with a polymerisable mixture comprising one or more polymerisable components and containing suspended droplets of a biliquid foam or of a high internal oil phase emulsion, the said droplets being stabilised by a non-reactive surfactant; and

10           ii) polymerising the coating to form a polymer comprising the droplets entrapped therein.

2. A method according to claim 1 wherein the coating is polymerised to form a film of the polymer comprising the droplets entrapped therein.

3. A method as claimed in claim 1 or 2 wherein a biliquid foam is used.

20           4. A method as claimed in claim 1 or 2 wherein a high internal oil phase emulsion is used which comprises at least 70 percent by weight of the oil phase.

25           5. A method as claimed in claim 4 wherein the high internal oil phase emulsion comprises at least 90 percent by weight of the oil phase.

30           6. A method as claimed in any one of the preceding claims wherein the polymerisable mixture comprises from 1 to 50 percent by weight of the biliquid foam or high internal oil phase emulsion.

7. A method as claimed in claim 6 wherein the polymerisable mixture comprises from 20 to 40 percent by weight of the biliquid foam or high internal oil phase emulsion.

8. A method as claimed in any one of the preceding claims wherein the coating is polymerised using electron beam, UV radiation, visible radiation, near infra-red, thermal or gamma radiation curing.

9. A method as claimed in any one of the preceding claims wherein the external phase of the biliquid foam or high internal oil phase emulsion comprises water or mixture of water with a polar solvent.

10. A method as claimed in claim 9 wherein the external phase comprises a mixture of water and a C<sub>1-4</sub> alcohol or organic oxygenate.

20 11. A method as claimed in any one of the preceding claims wherein the coating is polymerised by free-radical polymerisation.

25 12. A method as claimed in any one of the preceding claims wherein the polymerizable mixture is applied to the surface by printing.

30 13. A method as claimed in claim 12 wherein the printing is screen-printing, gravure printing, flexographic printing, lithographic printing, ink-jet printing or pad printing.

14. A method as claimed in any one of claims 1 to 11 wherein the polymerizable mixture is applied to the surface by spray-coating, roller coating, dip coating, or blade, pad or extrusion coating.

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15. A method according to any one of claims 1 to 11 wherein the polymer comprising the droplets entrapped therein is a dental filling.

10 16. A method according to any one of claims 1 to 14 wherein the polymer or polymer film comprises droplets comprising a fragrance entrapped therein and is a fragranced coating.

15 17. A method according to any one of claims 1 to 14 wherein the surface coating is a security or tamper proof coating comprising a chemically reactive or thermo-chromic or photo-chromic dye.

20 18. A surface coating prepared according to any one of the preceding claims which comprises droplets of a biliqid foam or high internal oil phase emulsion entrapped within a polymer or polymer film.

25 19. A surface coating as claimed in claim 18 in which the polymer or polymer film is selected so that the oil phase of the biliqid foam or high internal oil phase emulsion is releasable from the coating upon the application of shear force to the polymer or polymer film.

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20. A surface coating as claimed in claim 18 in which the polymer or polymer film is selected so that the oil is

releasable from the coating by the action or a chemical release agent on the polymer.

21. A surface coating as claimed in claim 20 in which  
5 the oil is released at a predetermined pH.

22. A surface coating as claimed in claim 20 in which the oil is releasable by contact of the polymer film with water, or other predetermined solvent.

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23. A surface coating as claimed in claim 18 in which the polymer or polymer film is selected so that the oil is releasable from the coating by the application of heat to the polymer.

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24. A surface coating as claimed in any one of claims 18 to 23 in which the polymer or polymer film is partially or wholly crosslinked.

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25. A stand alone polymer or polymer film which is obtained by removing the surface coating as claimed in any one of claims 18 to 24 from the substrate on which it is formed.